The Afghanistan Engineering Support Program assembled this deliverable. It is an approved, official USAID document. Budget information contained herein is for illustrative purposes. All policy, personal, financial, and procurement sensitive information has been removed. Additional information on the report can be obtained from Firouz Rooyani, Tetra Tech Sr. VP International Operations, (703) 387-2151.

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ENGINEERING SUPPORT PROGRAM

WO-LT-0039

Construction of Health and Education Facilities (CHEF)

Environmental Site Assessment Services

08 September 2011

This report was prepared for the United States Agency for International Development, Contract No. EDH-I-00-08-00027-00, Task Order 01, Afghanistan Engineering Support Program.

Principal Contacts:

[redacted]
VP International Operations
Tetra Tech, Inc.
Washington, DC
[redacted]

[redacted]
Senior Vice President
Tetra Tech, Inc.
Framingham, MA
[redacted]

[redacted]
Project Manager
Tetra Tech, Inc.
Framingham, MA
[redacted]

[redacted]
Chief of Party
Tetra Tech, Inc.
Kabul, Afghanistan
[redacted]

TETRA TECH

September 08, 2011

[redacted] COTR
USAID – Office of Infrastructure, Engineering and Energy (OIEE)
Café Compound
U.S. Embassy
Great Masood Road Kabul, Afghanistan

Re: WO-LT-0039 Construction of Health and Education Facilities (CHEF)
Environmental Site Assessment Services

[redacted],

Enclosed is the Environmental Site Assessment Services review of the CHEF Mitigation Plan dated 08 September 2011.

We consider this to be the final deliverable for this work order. Please feel free to contact us with any questions or comments.

Respectfully,

[redacted]
Acting Chief of Party (OIEE-AESP)
Tetra Tech, Inc.

Cc: [redacted] (USAID-OIEE)

AFGHANISTAN ENGINEERING SUPPORT PROGRAM

WO-LT-0039

Construction of Health and Education Facilities (CHEF) Environmental Site Assessment Services

08 September 2011

Table of Contents

1.0 Introduction

The Construction of Health and Education Facilities (CHEF) program was begun in 2008 and International Office for Migration (IOM) was chosen to implement the program. In cooperation with the Afghan Government, USAID identified Provincial Teacher Training Centers (PTTC), Midwife Training Centers (MTC) and Hospitals in various provinces to be constructed. Nine of the facilities are under construction or completed. An Initial Environmental Examination (IEE) was produced 21 October 2008.

Tetra Tech (Tt) was awarded Notice to Proceed (NTP) on WO-LT-0039 on 1 June 2011. Tt has been contracted to perform an Environmental Site Assessment based on the impacts and mitigation measures listed in the "Potential Environmental Impacts and Recommended Mitigation Measures" table of the CHEF Program IEE provided by USAID and in various documents that were developed by IOM for the program.

All 9 sites were visited to see if the environmental mitigation plan addresses all environmental impacts of the work as well as to identify any additional impacts that were not included in the existing environmental mitigation plan and provide appropriate mitigation measures for those impacts. The IOM environmental mitigation plan addresses all environmental impacts of the work. No additional impact categories were identified, but a few additional impacts within the defined categories were recognized (Appendix A).

2.0 Environmental Mitigation Review

The CHEF construction sites visited were very well run compared to local standards. The problems identified were minimal and can be easily rectified. The general problems associated with most sites were related to: initial and interval chemical and biological sampling of onsite wells, aquifer capacity and water treatment, waste disposal at approved locations, material importing from approved sources, secondary containment for hazardous materials, lack of spill kits, lack of use of native landscaping, UXO clearance to appropriate depths and lack of documentation in the project files.

Initial well sampling for chemical and biological concerns was completed at most sites. Some sites did not receive full or any sampling. Ongoing interval sampling has not been conducted at any site. No documentation of plans for interval sampling was available. Three sites have insufficient or undocumented well capacity. The use of chlorine to disinfect water at untested wells may be used, but there is no documentation or plans at present to use chlorine.

There is a lack of approved locations for waste disposal and material importing. Most sites have hired a local private business for disposal of wastewater, solid waste and hazardous waste. There is no segregation of waste streams for this reason as well. Hazardous waste spills are not properly planned for and hazardous waste spill kits are not present. There is no secondary containment for fuel storage and usage. Materials imported for use during construction have not been from approved facilities as, generally, these sources do not exist.

Native landscaping has not been documented for use within the final design or used at the completed Khost site at present.

All sites received UXO clearance from UN MACCA prior to construction. UN MACCA clearances are to a depth of 1.5 meters. Septic tanks, holding tanks and some building footings installed during construction exceeded this depth. There was no evidence that further UXO clearance by UN MACCA or dedicated onsite UXO screening was obtained prior to excavations beyond 1.5 meters.

The electronic files provided by IOM lacked various reports; including O&M and Hydrogeologic Investigation and Final Well Reports.

3.0 CHEF Sites Overview

The nine sites are listed below.

Provincial Teacher Training Colleges (PTTC):

1) Charikar, Parwan Province (Tt inspection - 20 June 2011)
2) Jalalabad, Nangarhar Province (Tt inspection - 26 June 2011)
3) Maidan Shar, Wardak Province (IOM inspection - 7 July 2011)
4) Maimana, Faryab Province (Tt inspection - 28 July 2011)

Midwife training Centers (MTC):

5) Faizabad, Badakhshan Province (Tt inspection - 5 July 2011)
6) Khost, Khost Province (USAID inspection - 30 July 2011)
7) Bamyan, Bamyan Province (Tt inspection - 28 July 2011)

Hospitals:

8) Gardez, Paktia Province (IOM inspection- 7 July 2011)
9) Khair Kot, Paktika Province (IOM inspection - 9 July 2011)

The PTTC sites consist of:

1) Total building area of 4,772 m2.
2) Academy Building consisting of 21 Classrooms and 3 Laboratories in 2 stories for 600 students. 1,974 m2.
3) Male Dormitory for 100 students. 1,201m2.
4) Female Dormitory for 100 students. 1,201 m2.
5) Kitchen and Dining areas. 285 m2.
6) Guard House. 24 m2.
7) Generator Room. 30 m2.
8) Water Well.
9) Water Tower with 63 m3 volume.
10) Boundary Security Wall of ~520 m.
11) Site areas vary from 11,839 m2 to 15,082 m2.

The MTC sites consist of:

1) Total building area of 1,440 m2.
2) Academy Buildings consisting of 2 Classrooms, 2 Laboratories and 1 Computer Laboratory for 60 students. 575 m2.
3) Dormitory for 40 students. 643 m2.
4) Guard House. 40.5 m2.
5) Generator Room with fuel tank. 98.15 m2.
6) Water Well.
7) Water Tower with 11 m3 volume.
8) Boundary Security Wall of ~400 m.
9) Site areas vary from 4,855 m2 to 9,942 m2.

The 100-Bed Hospital site at Gardez consists of:

1) Serves 1,000,000 beneficiaries.
2) Total building area of 9,735 m2.
3) Emergency Area. 470 m2.
4) Outpatient Ward and Examination Rooms. 1,317 m2.
5) Inpatient Ward. 1,870 m2.
6) Delivery Theatres. 250 m2.
7) Surgery Theatres. 616 m2.
8) Services and Mechanical Facilities. 873 m2.
9) Administration Facilities. 386 m2.
10) Guard House.
11) Water Well.
12) Water Tower.
13) Generator Room and Fuel Tank.
14) Boundary Security Wall of 678 m.
15) Total site area is 29,096 m2.

The 20-Bed Hospital site at Khair Kot consists of:

1) Serves 300,000 beneficiaries.
2) Total building area of 2,080 m2.
3) Male Ward. 372.1 m2.
4) Female Ward. 372.1 m2.
5) Outpatient Ward. 472.3 m2.
6) Main Building (Emergency and Operation Theatres). 862 m2.
7) Generator Building and Fuel Tank.
8) Water Well.
9) Water Tower. 68 m3.
10) Total site area is 14,298 m2.

4.0 CHEF Sites

4.1 Charikar, Parwan Province PTTC

The Charikar site visit was performed by Tt Senior Geologist [redacted] on 20 June 2011. A table was created to document any deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix B).

On-site construction generator with minor spillage and no secondary containment

Classroom (right) and Administration Building

Water well

Concrete debris and trash from the site disposed of adjacent to the site

4.2 Jalalabad, Nangarhar Province PTTC

The Jalalabad site visit was performed by Tt Senior Geologist [redacted] on 26 June 2011. A table was created to document any deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix C).

Temporary construction activity septic holding area

Generator with oil and fuel spills and/or leaks

Women’s dorm (left) and kitchen

Existing site water well

4.3 Maidan Shar, Wardak Province PTTC

The Maidan Shar site visit was performed by IOM on 7 July 2011. A table was created to document any deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix D).

Site work concrete testing

Finishing plaster at the door frame

Progress of concrete placement

Ongoing concrete construction

4.4 Maimana, Faryab Province PTTC

The Maimana site visit was performed by Tt Senior Engineer [redacted] on 28 July 2011. A table was created to document any deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix E).

Construction generator with no secondary containment

Pad construction for water well

School building and construction generator with no secondary containment

Generator building

4.5 Faizabad, Badakhshan Province MTC

The Faizabad site visit was performed by Tt Senior Engineer [redacted] on 5 July 2011. A table was created to document any deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix F).

Septic tank manholes and vent pipe for the main building

Secondary containment for permanent generator fuel storage

Generator building

Water well

4.6 Khost, Khost Province MTC

The Khost site visit was performed by USAID representative [redacted] on 30 July 2011. As the construction is complete, there was little data on pre and during construction mitigation efforts. A generalized table was created to document usual deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix G).

Midwife Training Center (view 1)

Midwife Training Center (view 2)

Midwife Training Center Entrance and Guard Building

Midwife training Center outer wall

4.7 Bamyan, Bamyan Province MTC

The Bamyan site visit was performed by GardaWorld/Tt staff [redacted]t on 28 July 2011. A table was created to document any deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix H).

Construction generator with spills and/or leaks apparent

General site conditions

Fuel tank base and general site conditions

Well head adjacent a cement mixer

4.8 Gardez, Paktia Province 100 Bed Hospital

The Gardez site visit was performed by IOM on 7 July 2011. A table was created to document any deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix I).

Wall foundation footing

Sewer pipe installation

Concrete block construction (view 1)

Concrete block construction (view 2)

4.9 Khair Kot, Paktika Province 20 Bed Hospital

The Khair Kot site visit was performed by IOM on 9 July 2011. A table was created to document any deviations from the CHEF IEE Enhancement and Mitigation Plan developed by IOM (Appendix J).

Main building slab and beam

Concrete slump test

Concrete test cylinder preparation

Washing sand

Appendices

Appendix A

CHEF PTTC, MTC and Hospital IEE Mitigation Review

CHEF PTTC, MTC and Hospital IEE Mitigation Review	
Environmental Consideration	IOM Mitigation Measures
Pre-Construction	
Building Site Selection and Design	• Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement • Design incorporates wind direction and management of water supply, safe sanitation and solid waste disposal
Socio-economics	• Program shall include capacity building, including classroom and on the job training in construction methods, quality control and construction safety • Use of local subcontractors shall be encouraged whenever possible
Geologic and Seismic Hazards	• Built in accordance with 1997 UBC Seismic level 4 design criteria and to withstand generally earthquakes of up to 7.5 on the Richter scale • Design and construct project in accordance with appropriate seismic design criteria
Unexploded Ordnance (UXO)	• If potential UXO identified, area shall immediately evacuated and secured • UNMACCA or other qualified and authorized disposal organization shall be immediately notified and arrangements made to dispose of the potential UXO • If excavation is required below the 1.5 m cleared zone or if excavation is required outside of the building footprint, a certified demining organization shall be employed to survey and clear the area prior to any works. • UXO safety training on potential UXO ID and response
Historic/Cultural/ Archaeological Resources	• If cultural resources are encountered, stop work and notify USAID and the Archaeological Committee of the Ministry of Information and Culture • Sub-Contractor shall take all necessary measures to protect the findings and shall notify the Contractor and provincial-level representatives if the Archeological Committee and the Ministry of Information and Culture. • Project work shall be suspended until a solution for preservation of the artifacts is agreed upon
Noise	• Limit work to daylight hours • Equipment maintained in good working order with proper exhaust system • Use noise barriers if warranted • Locate stationary equipment with high intensity noise impacts away from neighboring residences when possible. • Address neighbor complaints
Hydrology (Groundwater Quality)	• Drilling and well sampling in accordance with industry standards • Eliminate sources of pollution from near the well head (chemicals, soils) • No discharge into any water (surface and subsuface water) • Keep existing stream courses and drains clean and free of debris
Soils (Erosion, Soil Quality)	• Backfill borings and test pits immediately • No significant impact to nearby agriculture • Maintain equipment (including exhaust systems) in good working order • Drilling and soil sampling techniques in accordance with industry standards
Healthcare Waste Management (Healthcare Projects Only)	• Incinerated on site (ideally single chamber), burial only with approval of MoPH, removal from the site by a certified disposal company • Segregate waste streams, begin with sharps, separate into hazardous and general waste • Instruct management and staff on properly handling medical and general waste • Personal hygiene-soap and water readily available • Sharps handling-training on viral transmission (thick gloves/aprons for those handling healthcare waste)
During Construction	
Air Quality (Dust)	• Use of water (or equivalent) to suppress dust • Locate stationary dust-intensive operations (screening, crushing, etc.) away from neighboring residences when possible • Establish stable ground cover to prevent mobilization of dust • Cover trucks transporting earth, sand or stone with tarps • Sub-Contractors will be required to spray excavation and rehabilitation sites to keep them moist for dust control • Open burning will be prohibited in populated areas and requirements for spraying and related dust control measures and the proper use of solvents and volatile materials will be incorporated in the contract provisions
Air Quality (Exhaust emissions)	• Maintain equipment and vehicles in good working order • Limit vehicle idling • Prohibit on-site open burning • Require proper use of solvents and volatile materials

CHEF PTTC, MTC and Hospital IEE Mitigation Review	
Environmental Consideration	IOM Mitigation Measures
Topography and Soils (Cut and fill)	• Design plan to minimize changes in grade • Reuse excess soil on-site when appropriate • Reuse excess soil at appropriate off-site locations when possible • Obtain imported fill from USAID or government approved quarries and construction material sources
Topography and Soils (Erosion)	• Implement erosion control measures (silt fences, stabilized construction entrances, benches/dikes) during construction • Establish stable ground cover upon completion of construction • Design and build appropriately sized storm water system
Hydrology (Aquifer capacity)	• Design, install and manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report
Hydrology (Groundwater quality)	• Design potable treatment system in accordance with recommendations of Final Well Report • Construct and maintain water treatment system • Conduct sampling at well start up and regular intervals thereafter • Eliminate potential sources of groundwater contamination near well head (i.e. untreated sewage from neighboring properties) • Keep existing stream courses and drains clean and free of debris
Hydrology (Wastewater Management)	• Latrines will be considered during construction, and sanitary waste will be transported off-site to a USAID or government approved disposal site/facility • Construct and maintain waste water treatment plant • Manage use (level) of pesticide (chlorine) for water disinfecting • Implement odor control measures if necessary
Hydrology (Storm water)	• Design and build an appropriate storm water management system • Design and build drainage outfalls and infiltration ponds of sufficient capacity to receive storm water and treated wastewater
Soils and Hazardous Waste (Spills)	• Train workers on Best Management Practices for fueling, maintaining and repairing equipment • Train workers to properly store and label fuel and chemical containers • Train workers to respond to spills • Provide on-site emergency spill kit
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams · Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Implement odor control measures if necessary • Dispose of waste materials at USAID or government approved disposal sites/facilities
Flora (Plant species)	• Landscaping plan that uses native plant species • Inlet protection measures will be installed following completion of the storm drain system to prevent sedimentation of the downstream storm water infiltration pond • No potentially significant impacts to flora have been identified. Impacts to plant life and agricultural crops during project works will be mitigated through the appropriate construction supervision activities to ensure that ancillary features are properly cited.
Fauna (Wildlife)	• Adverse impacts to threatened or endangered species are not anticipated as a result of this Project
Historic/Cultural/ Archaeological Resources	• If cultural resources are encountered, stop construction and notify USAID and the Archaeological Committee of the Ministry of Information and Culture • Sub-Contractor shall take all necessary measures to protect the findings and shall notify the Contractor and provincial-level representatives if the Archeological Committee and the Ministry of Information and Culture. • Project work shall be suspended until a solution for preservation of the artifacts is agreed upon
Noise	• Limit construction work to daylight hours • Locate stationary equipment with high intensity noise impacts away from neighboring residences when possible. • Use noise barriers if warranted • Limit high intensity construction noise generating activities to daylight hours • Address neighbor complaints • Maintain equipment in good working order with proper exhaust systems and silencers if applicable

CHEF PTTC, MTC and Hospital IEE Mitigation Review	
Environmental Consideration	IOM Mitigation Measures
Traffic	• Limit construction work to daylight hours • Delivery of materials and equipment to the project sites shall be scheduled during periods of light traffic (e.g. early morning or late afternoon). • Where necessary, pedestrian access way improvements shall be provided prior to starting construction activities, improvements could include sidewalks fencing, or alternate routes • The construction contractor shall provide flag men and other traffic control measures to avoid conflicts between construction traffic and other vehicles and/or pedestrians. • Coordinate haul routes with local officials • Consider roadway improvements/repairs if construction traffic or increases in traffic lead to road deterioration
Post-Construction (Operational Phase)	
Air Quality (Dust)	• Establish stable ground cover to prevent mobilization of dust • Maintain roadways to prevent mobilization of dust • No open burning
Air Quality (Exhaust emissions)	• Power from electrical grid will reduce need for generator use • Limit vehicle idling
Topography and Soils (Erosion)	• Establish stable ground cover upon completion of construction • Maintain storm water management system
Hydrology (Aquifer capacity)	• Manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report
Hydrology (Groundwater quality)	• Maintain water treatment system • Sample water supply well at regular intervals • Eliminate potential sources of groundwater contamination near well head (I.E. untreated sewage from neighboring properties)
Hydrology (Wastewater Management)	• Maintain waste water treatment plant • Manage use (level) of pesticide (chlorine) for water disinfecting • Implement odor control measures if necessary
Hydrology (Storm water)	• Establish stable ground cover upon completion of construction • Maintain storm water system, drainage outfalls and infiltration ponds
Soils and Hazardous Waste (Spills)	• Train workers to properly store and label fuel and chemical containers • Train workers to respond to spills • Provide on-site emergency spill kit • The new underground electrical distribution system will reduce reliance on fuel-powered generators
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams • Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Dispose of waste materials at USAID or government approved disposal sites/facilities • Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil amendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water supply is too limited to justify septic system use. • Solid wastes shall be transported off the site and disposed of in a disposal site previously approved by the Ministry of Urban Development. • In the event buried hazardous wastes are uncovered during excavation, all construction activities shall cease.
Flora (Plant species)	• Landscaping plan that uses native plant species and does not require irrigation
Noise	• Address neighbor complaints • Maintain equipment in good working order with proper exhaust systems and silencers if applicable. • Use noise barriers if warranted
Traffic	• Consider roadway improvements/repairs if construction traffic or increases in traffic lead to road deterioration

Appendix B

Charikar, Parwan Province PTTC IEE Mitigation Items

Charikar, Parwan Province PTTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Pre-Construction		
Building Site Selection and Design	• Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement • Design incorporates wind direction and management of water supply. Safe sanitation and solid waste disposal	Design does not appear to include energy efficiencies. Recommendation: document any efficiencies designed and incorporated.
UXO	• Certificate • Procedures for discovery, protection and notification • Excavation depth (1.5 meters) • Building outside design footprint	No UXO clearance beyond a depth of 1.5 meters. Recommendation: Document lack of bombardment area with UN MACCA concerning excavation for holding/septic tanks or deep footings.
During Construction		
Hydrology (Aquifer capacity)	• Design, install and manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No measurement of water column after installation. Recommendation: install access at well head to allow for depth to water measurements. No Hydrogeologic Investigation and Final Well Report available. Recommendation: File report in Project files.
Hydrology (Groundwater quality)	• Design potable treatment system in accordance with recommendations of Final Well Report • Construct and maintain water treatment system • Conduct sampling at well start up and regular intervals thereafter • Eliminate potential sources of groundwater contamination near well head (i.e. untreated sewage from neighboring properties) • Keep existing stream courses and drains clean and free of debris	No regular interval well sampling. Recommendation: develop appropriate interval well sampling program. No Final Well Report available. Recommendation: File report in Project files. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.
Hydrology (Wastewater Management)	• Latrines will be considered during construction, and sanitary waste will be transported off-site to a USAID or government approved disposal site/facility • Manage use (level) of pesticide (chlorine) for water disinfecting • Construct and maintain waste water treatment system • Implement odor control measures if necessary	No approved disposal facility. Recommendation: document usage of appropriate transporter or facility. No program of chlorine management for water disinfectant. Recommendation: manage use of chlorine as a disinfectant.
Soils and Hazardous Waste (Spills)	• Train workers on Best Management Practices for fueling, maintaining and repairing equipment • Train workers to properly store and label fuel and chemical containers • Train workers to respond to spills • Provide on-site emergency spill kit	No secondary containment for generators and fuel filling area. Recommendation: plan and install appropriate secondary containment. No spill kit or training for usage. Recommendation: Create spill kit and train workers on how to use it.
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams · Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Implement odor control measures if necessary • Dispose of waste materials at USAID or government approved disposal sites/facilities	No approved disposal transporter/facility yet identified, no segregation due to lack of disposal facilities. Recommendation: document use of appropriate waste transporter or facility.
Flora (Plant species)	• Landscaping plan that uses native plant species • Inlet protection measures will be installed following completion of the storm drain system to prevent sedimentation of the downstream storm water infiltration pond • No potentially significant impacts to flora have been identified. Impacts to plant life and agricultural crops during project works will be mitigated through the appropriate construction supervision activities to ensure that ancillary features are properly cited.	No landscaping onsite during construction. Recommendation: Install appropriate landscaping or verify and document lack of area appropriate for landscaping during construction.
Post-Construction (Operational Phase)		
Hydrology (Aquifer capacity)	• Manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No Hydrogeologic Investigation and Final Well Report available. Recommendation: file report in Project Files.

Charikar, Parwan Province PTTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Hydrology (Groundwater quality)	• Maintain water treatment system • Sample water supply well at regular intervals • Eliminate potential sources of groundwater contamination near well head (I.E. untreated sewage from neighboring properties)	No regular interval well sampling planned. Recommendation: develop appropriate interval well sampling program. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.
Hydrology (Wastewater Management)	• Manage use (level) of pesticide (chlorine) for water disinfecting • Maintain waste water treatment plant • Implement odor control measures if necessary	No program of chlorine management for water disinfectant. Recommendation: manage use of chlorine as a disinfectant.
Soils and Hazardous Waste (Spills)	• Train workers to properly store and label fuel and chemical containers • Train workers to respond to spills • Provide on-site emergency spill kit • The new underground electrical distribution system will reduce reliance on fuel-powered	No O&M manual available to document soils and hazardous waste (spills) SOPs during operation. Recommendation: File O&M manual.
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams • Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Dispose of waste materials at USAID or government approved disposal sites/facilities • Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil amendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water supply is too limited to justify septic system use. • Solid wastes shall be transported off the site and disposed of in a disposal site previously approved by the Ministry of Urban Development	Waste streams not planned to be fully segregated. Solid wastes likely to be disposed of at a site approved by Parwan Provincial Government, not by the Ministry of Urban Development. Recommendation: Document use of appropriate transporter or facility. No O&M manual available to document soils and hazardous waste management during operation. Recommendation: File O&M manual.
Flora (Plant species)	• Landscaping plan that uses native plant species and does not require irrigation	Landscaping plans do not utilize native plant species. Recommendation: New landscaping plan.

Appendix C

Jalalabad, Nangarhar Province PTTC IEE Mitigation Items

Jalalabad, Nangarhar Province PTTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Pre-Construction		
Building Site Selection and Design	• Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement • Design incorporates wind direction and management of water supply. Safe sanitation and solid waste disposal	Design does not appear to include energy efficiencies. Recommendation: document any efficiencies designed and incorporated.
UXO	• Certificate • Procedures for discovery, protection and notification • Excavation depth (1.5 meters) • Building outside design footprint	No UXO clearance beyond a depth of 1.5 meters. Recommendation: Document lack of bombardment area with UN MACCA concerning excavation for holding/septic tanks or deep footings.
During Construction		
Hydrology (Aquifer capacity)	• Design, install and manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No measurement of water column. Recommendation: gain access at well head to allow for depth to water measurements. No Hydrogeologic Investigation and Final Well Report available. Recommendation: File report in Project files.
Hydrology (Groundwater quality)	• Design potable treatment system in accordance with recommendations of Final Well Report • Construct and maintain water treatment system • Conduct sampling at well start up and regular intervals thereafter • Eliminate potential sources of groundwater contamination near well head (i.e. untreated sewage from neighboring properties) • Keep existing stream courses and drains clean and free of debris	No initial or regular interval well sampling. Recommendation: develop appropriate initial and interval well sampling program. No Final Well Report available. Recommendation: File report in Project files. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.
Hydrology (Wastewater Management)	• Latrines will be considered during construction, and sanitary waste will be transported off-site to a USAID or government approved disposal site/facility • Construct and maintain waste water treatment plant • Manage use (level) of pesticide (chlorine) for water disinfecting • Implement odor control measures if necessary	No approved transporter or facility yet identified. Recommendation: document use of appropriate transporter or facility. No water treatment system or plan for chlorine use. Recommendation: plan and install appropriate water treatment system with plan for chlorine usage.
Soils and Hazardous Waste (Spills)	• Train workers on Best Management Practices for fueling, maintaining and repairing equipment • Train workers to properly store and label fuel and chemical containers • Train workers to respond to spills • Provide on-site emergency spill kit	No secondary containment for generators and fuel filling area. Recommendation: plan and install appropriate secondary containment. No spill kit and training. Recommendation: create spill kit and train all workers.
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams · Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Implement odor control measures if necessary • Dispose of waste materials at USAID or government approved disposal sites/facilities	No approved disposal transporter or facility identified, no segregation. Recommendation: document use of appropriate waste transporter or facility.
Flora (Plant species)	• Landscaping plan that uses native plant species • Inlet protection measures will be installed following completion of the storm drain system to prevent sedimentation of the downstream storm water infiltration pond • No potentially significant impacts to flora have been identified. Impacts to plant life and agricultural crops during project works will be mitigated through the appropriate construction supervision activities to ensure that ancillary features are properly cited.	No landscaping onsite during construction. Recommendation: Install appropriate landscaping or verify and document lack of area appropriate for landscaping during construction.
Post-Construction (Operational Phase)		
Hydrology (Aquifer capacity)	• Manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No Hydrogeologic Investigation and Final Well Report available. Recommendation: file report in Project Files.

Jalalabad, Nangarhar Province PTTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Hydrology (Groundwater quality)	• Maintain water treatment system • Sample water supply well at regular intervals • Eliminate potential sources of groundwater contamination near well head (I.E. untreated sewage from neighboring properties)	No initial and interval well sampling planned. Recommendation: develop appropriate well sampling program. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.
Hydrology (Wastewater Management)	• Manage use (level) of pesticide (chlorine) for water disinfecting • Maintain waste water treatment plant • Implement odor control measures if necessary	No program of chlorine management for water disinfectant. Recommendation: manage use of chlorine as a disinfectant.
Soils and Hazardous Waste (Spills)	• Train workers to properly store and label fuel and chemical containers • Train workers to respond to spills • Provide on-site emergency spill kit • The new underground electrical distribution system will reduce reliance on fuel-powered	No O&M manual available to document soils and hazardous waste (spills) SOPs during operation. Recommendation: File O&M manual.
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams • Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Dispose of waste materials at USAID or government approved disposal sites/facilities • Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil amendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water supply is too limited to justify septic system use. • Solid wastes shall be transported off the site and disposed of in a disposal site previously approved by the Ministry of Urban Development	Waste streams not planned to be fully segregated. No approved transporter or facility. Recommendation: Document use of appropriate transporter or facility. No O&M manual available to document soils and hazardous waste management during operation. Recommendation: File O&M manual.
Flora (Plant species)	• Landscaping plan that uses native plant species and does not require irrigation	Landscaping plans do not utilize native plant species. Recommendation: New landscaping plan.

Appendix D

Maidan Shar, Wardak Province PTTC IEE Mitigation Items

Maidan Shar, Wardak Province PTTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Pre-Construction		
Building Site Selection and Design	• Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement • Design incorporates wind direction and management of water supply. Safe sanitation and solid waste disposal	Design does not appear to include energy efficiencies. Recommendation: document any efficiencies designed and incorporated.
UXO	• Certificate • Procedures for discovery, protection and notification • Excavation depth (1.5 meters) • Building outside design footprint	No UXO clearance beyond a depth of 1.5 meters. Recommendation: Document lack of bombardment area with UN MACCA concerning excavation for holding/septic tanks or deep footings.
During Construction		
Topography and Soils (Cut and fill)	• Design plan to minimize changes in grade • Reuse excess soil on-site when appropriate • Reuse excess soil at appropriate off-site locations when possible • Obtain imported fill from USAID or government approved quarries and construction material sources	No approved imported fill sources. Recommendation: document use of appropriate import sources.
Hydrology (Aquifer capacity)	• Design, install and manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No Hydrogeologic Investigation and Final Well Report available. Recommendation: file report in Project Files. Well is insufficient. IOM is currently seeking a detailed hydrogeologic report for Wardak. Water may be trucked to the facility during operations.
Hydrology (Groundwater quality)	• Design potable treatment system in accordance with recommendations of Final Well Report • Construct and maintain water treatment system • Conduct sampling at well start up and regular intervals thereafter • Eliminate potential sources of groundwater contamination near well head (i.e. untreated sewage from neighboring properties) • Keep existing stream courses and drains clean and free of debris	No initial or regular interval well sampling. Recommendation: develop appropriate initial and interval well sampling program if/once sufficient well is online. No Final Well Report available. Recommendation: File report in Project files, update or append with detailed hydrogeologic report forthcoming. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.
Hydrology (Wastewater Management)	• Latrines will be considered during construction, and sanitary waste will be transported off-site to a USAID or government approved disposal site/facility • Construct and maintain waste water treatment plant • Manage use (level) of pesticide (chlorine) for water disinfecting • Implement odor control measures if necessary	No approved transporter or facility yet identified. Recommendation: document use of appropriate transporter of facility. No water treatment system or plan for chlorine use. Recommendation: plan and install appropriate water treatment system with plan for chlorine usage.
Soils and Hazardous Waste (Spills)	• Train workers on Best Management Practices for fueling, maintaining and repairing equipment • Train workers to properly store and label fuel and chemical containers • Train workers to respond to spills • Provide on-site emergency spill kit	No secondary containment for generators and fuel filling area. Recommendation: plan and install appropriate secondary containment.
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams · Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Implement odor control measures if necessary • Dispose of waste materials at USAID or government approved disposal sites/facilities	No approved transporter or facility identified, no segregation. Recommendation: document use of appropriate waste transporter or facility.
Flora (Plant species)	• Landscaping plan that uses native plant species • Inlet protection measures will be installed following completion of the storm drain system to prevent sedimentation of the downstream storm water infiltration pond • No potentially significant impacts to flora have been identified. Impacts to plant life and agricultural crops during project works will be mitigated through the appropriate construction supervision activities to ensure that ancillary features are properly cited.	No landscaping onsite during construction. Recommendation: Install appropriate landscaping or verify and document lack of area appropriate for landscaping during construction.

Maidan Shar, Wardak Province PTTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Post-Construction (Operational Phase)		
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams • Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Dispose of waste materials at USAID or government approved disposal sites/facilities • Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil amendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water supply is too limited to justify septic system use. • Solid wastes shall be transported off the site and disposed of in a disposal site previously approved by the Ministry of Urban Development	Waste streams not planned to be fully segregated. No approved transporter or facility available. Recommendation: Document use of appropriate disposal transporter or facility.

Appendix E

Maimana, Faryab Province PTTC IEE Mitigation Items

Maimana, Faryab Province PTTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Pre-Construction		
Building Site Selection and Design	• Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement • Design incorporates wind direction and management of water supply. Safe sanitation and solid waste disposal	Design does not appear to include energy efficiencies. Recommendation: document any efficiencies designed and incorporated.
UXO	• Certificate • Procedures for discovery, protection and notification • Excavation depth (1.5 meters) • Building outside design footprint	No UXO clearance beyond a depth of 1.5 meters. Recommendation: Document lack of bombardment area with UN MACCA concerning excavation for holding/septic tanks or deep footings/excavations.
During Construction		
Topography and Soils (Cut and fill)	• Design plan to minimize changes in grade • Reuse excess soil on-site when appropriate • Reuse excess soil at appropriate off-site locations when possible • Obtain imported fill from USAID or government approved quarries and construction material sources	Imported fill not obtained from USAID or government approved quarries. Document use of appropriate sources of fill.
Hydrology (Aquifer capacity)	• Design, install and manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	Well ran dry during pump test. Recommendation: plan for future water usuage. No measurement of water column. Recommendation: gain access at well head to allow for depth to water measurements. No Hydrogeologic Investigation and Final Well Report available. Recommendation: File report in Project files.
Hydrology (Groundwater quality)	• Design potable treatment system in accordance with recommendations of Final Well Report • Construct and maintain water treatment system • Conduct sampling at well start up and regular intervals thereafter • Eliminate potential sources of groundwater contamination near well head (i.e. untreated sewage from neighboring properties) • Keep existing stream courses and drains clean and free of debris	No initial chemical water testing. Recommendation: implement testing or document testing performed in project files. No regular interval well sampling. Recommendation: develop appropriate interval well sampling program. No Final Well Report available. Recommendation: File report in Project files. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.
Hydrology (Wastewater Management)	• Latrines will be considered during construction, and sanitary waste will be transported off-site to a USAID or government approved disposal site/facility • Construct and maintain waste water treatment plant • Manage use (level) of pesticide (chlorine) for water disinfecting • Implement odor control measures if necessary	No water treatment system or plan for chlorine use. Recommendation: plan and install appropriate water treatment system with plan for chlorine usage.
Soils and Hazardous Waste (Spills)	• Train workers on Best Management Practices for fueling, maintaining and repairing equipment • Train workers to properly store and label fuel and chemical containers • Train workers to respond to spills • Provide on-site emergency spill kit	No secondary containment for generators and fuel filling area. Recommendation: plan and install appropriate secondary containment.
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams · Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Implement odor control measures if necessary • Dispose of waste materials at USAID or government approved disposal sites/facilities	No approved disposal transporter or facility identified, no segregation. Recommendation: document use of appropriate waste transporter or facility.

Maimana, Faryab Province PTTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Flora (Plant species)	• Landscaping plan that uses native plant species • Inlet protection measures will be installed following completion of the storm drain system to prevent sedimentation of the downstream storm water infiltration pond • No potentially significant impacts to flora have been identified. Impacts to plant life and agricultural crops during project works will be mitigated through the appropriate construction supervision activities to ensure that ancillary features are properly cited.	No landscaping onsite during construction. Recommendation: Install appropriate landscaping or verify and document lack of area appropriate for landscaping during construction.
Post-Construction (Operational Phase)		
Hydrology (Aquifer capacity)	• Manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No Hydrogeologic Investigation and Final Well Report available. Recommendation: file report in Project Files.
Hydrology (Groundwater quality)	• Maintain water treatment system • Sample water supply well at regular intervals • Eliminate potential sources of groundwater contamination near well head (I.E. untreated sewage from neighboring properties)	No interval well sampling planned. Recommendation: develop appropriate well sampling program.
Hydrology (Wastewater Management)	• Manage use (level) of pesticide (chlorine) for water disinfecting • Maintain waste water treatment plant • Implement odor control measures if necessary	No program of chlorine management for water disinfectant. Recommendation: manage use of chlorine as a disinfectant.
Soils and Hazardous Waste (Spills)	• Train workers to properly store and label fuel and chemical containers • Train workers to respond to spills • Provide on-site emergency spill kit • The new underground electrical distribution system will reduce reliance on fuel-powered	No O&M manual available to document soils and hazardous waste (spills) SOPs during operation. Recommendation: File O&M manual.
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams • Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Dispose of waste materials at USAID or government approved disposal sites/facilities • Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil amendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water supply is too limited to justify septic system use. • Solid wastes shall be transported off the site and disposed of in a disposal site previously approved by the Ministry of Urban Development	Waste streams not planned to be fully segregated. No approved transporter or facility. Recommendation: Document use of appropriate transporter or facility. No O&M manual available to document soils and hazardous waste management during operation. Recommendation: File O&M manual.
Flora (Plant species)	• Landscaping plan that uses native plant species and does not require irrigation	Landscaping plans do not utilize native plant species. Recommendation: New landscaping plan.

Appendix F

Faizabad, Badakhshan Province MTC IEE Mitigation Items

Faizabad, Badakhshan Province MTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Pre-Construction		
Building Site Selection and Design	• Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement • Design incorporates wind direction and management of water supply. Safe sanitation and solid waste disposal	Design does not appear to include energy efficiencies. Recommendation: document any efficiencies designed and incorporated.
UXO	• Certificate • Procedures for discovery, protection and notification • Excavation depth (1.5 meters) • Building outside design footprint	No UXO clearance beyond a depth of 1.5 meters. Recommendation: Document lack of bombardment area with UN MACCA concerning excavation for holding/septic tanks or deep footings.
During Construction		
Topography and soils (cut and fill)	• Design plan to minimize changes in grade • Reuse excess soil on-site when appropriate • Reuse excess soil at appropriate off-site locations when possible • Obtain imported fill from USAID or government approved quarries and construction material sources	Imported soil not from approved location. Recommendation: Document use of appropriate source.
Hydrology (Aquifer capacity)	• Design, install and manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No measurement of water column. Recommendation: gain access at well head to allow for depth to water measurements. No Hydrogeologic Investigation and Final Well Report available. Recommendation: File report in Project files.
Hydrology (Groundwater quality)	• Design potable treatment system in accordance with recommendations of Final Well Report • Construct and maintain water treatment system • Conduct sampling at well start up and regular intervals thereafter • Eliminate potential sources of groundwater contamination near well head (i.e. untreated sewage from neighboring properties) • Keep existing stream courses and drains clean and free of debris	No interval well sampling. Recommendation: develop appropriate interval well sampling program. No Final Well Report available. Recommendation: File report in Project files. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.
Hydrology (Wastewater Management)	• Latrines will be considered during construction, and sanitary waste will be transported off-site to a USAID or government approved disposal site/facility • Construct and maintain waste water treatment system • Manage use (level) of pesticide (chlorine) for water disinfecting • Implement odor control measures if necessary	No approved disposal transporter/facility yet identified. Recommendation: document use of appropriate wastewater transporter/facility. No water treatment system or plan for chlorine use. Recommendation: plan and install appropriate water treatment system with plan for chlorine usage.
Soils and Hazardous Waste (Spills)	• Train workers on Best Management Practices for fueling, maintaining and repairing equipment • Train workers to properly store and label fuel and chemical containers • Train workers to respond to spills • Provide on-site emergency spill kit	No secondary containment for generators and fuel filling area. Recommendation: plan and install appropriate secondary containment. No spill kit and training. Recommendation: create spill kit and train all workers.
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams · Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Implement odor control measures if necessary • Dispose of waste materials at USAID or government approved disposal sites/facilities	Some site waste disposed adjacent to site. No approved disposal transporter or facility identified, no segregation. Recommendation: use and document use of appropriate waste transporter or facility.
Flora (Plant species)	• Landscaping plan that uses native plant species • Inlet protection measures will be installed following completion of the storm drain system to prevent sedimentation of the downstream storm water infiltration pond • No potentially significant impacts to flora have been identified. Impacts to plant life and agricultural crops during project works will be mitigated through the appropriate construction supervision activities to ensure that ancillary features are properly cited.	No landscaping onsite during construction. Recommendation: Install appropriate landscaping or verify and document lack of area appropriate for landscaping during construction.

Faizabad, Badakhshan Province MTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Post-Construction (Operational Phase)		
Hydrology (Aquifer capacity)	• Manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No Hydrogeologic Investigation and Final Well Report available. Recommendation: file report in Project Files.
Hydrology (Groundwater quality)	• Maintain water treatment system • Sample water supply well at regular intervals • Eliminate potential sources of groundwater contamination near well head (I.E. untreated sewage from neighboring properties)	No interval well sampling planned. Recommendation: develop appropriate well sampling program. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.
Hydrology (Wastewater Management)	• Manage use (level) of pesticide (chlorine) for water disinfecting • Maintain waste water treatment system • Implement odor control measures if necessary	No program of chlorine management for water disinfectant. Recommendation: manage use of chlorine as a disinfectant.
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams • Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Dispose of waste materials at USAID or government approved disposal sites/facilities • Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil amendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water supply is too limited to justify septic system use. • Solid wastes shall be transported off the site and disposed of in a disposal site previously approved by the Ministry of Urban Development	Waste streams not planned to be fully segregated. Solid waste not planned to be disposed of with an approved transporter or facility. Recommendation: Document use of appropriate transporter and/or facility. No O&M manual available to document soils and hazardous waste management during operation. Recommendation: File O&M manual.
Flora (Plant species)	• Landscaping plan that uses native plant species and does not require irrigation	Landscaping plans do not utilize native plant species. Recommendation: New landscaping plan.

Appendix G

Khost, Khost Province MTC IEE Mitigation Items

Khost, Khost Province MTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Pre-Construction		
Building Site Selection and Design	• Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement • Design incorporates wind direction and management of water supply. Safe sanitation and solid waste disposal	Design does not appear to include energy efficiencies. Recommendation: document any efficiencies designed and incorporated.
UXO	• Certificate • Procedures for discovery, protection and notification • Excavation depth (1.5 meters) • Building outside design footprint	No UXO clearance beyond a depth of 1.5 meters. Recommendation: Document lack of bombardment area with UN MACCA concerning excavation for holding/septic tanks or deep footings.
During Construction		
Topography and soils (cut and fill)	• Design plan to minimize changes in grade • Reuse excess soil on-site when appropriate • Reuse excess soil at appropriate off-site locations when possible • Obtain imported fill from USAID or government approved quarries and construction material sources	Imported soil not from approved location. Recommendation: Document use of appropriate source.
Hydrology (Aquifer capacity)	• Design, install and manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No measurement of water column. Recommendation: gain access at well head to allow for depth to water measurements. No Hydrogeologic Investigation and Final Well Report available. Recommendation: File report in Project files.
Hydrology (Groundwater quality)	• Design potable treatment system in accordance with recommendations of Final Well Report • Construct and maintain water treatment system • Conduct sampling at well start up and regular intervals thereafter • Eliminate potential sources of groundwater contamination near well head (i.e. untreated sewage from neighboring properties) • Keep existing stream courses and drains clean and free of debris	No initial biological sampling. Recommendation: develop initial biological sampling program. No regular interval well sampling. Recommendation: develop appropriate interval well sampling program. No Final Well Report available. Recommendation: File report in Project files. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.
Hydrology (Wastewater Management)	• Latrines will be considered during construction, and sanitary waste will be transported off-site to a USAID or government approved disposal site/facility • Construct and maintain waste water treatment system • Manage use (level) of pesticide (chlorine) for water disinfecting • Implement odor control measures if necessary	No approved disposal transporter/facility yet identified. Recommendation: document use of appropriate wastewater transporter/facility. No water treatment system or plan for chlorine use. Recommendation: plan and install appropriate water treatment system with plan for chlorine usage.
Soils and Hazardous Waste (Spills)	• Train workers on Best Management Practices for fueling, maintaining and repairing equipment • Train workers to properly store and label fuel and chemical containers • Train workers to respond to spills • Provide on-site emergency spill kit	No secondary containment for generators and fuel filling area. Recommendation: plan and install appropriate secondary containment. No spill kit and training. Recommendation: create spill kit and train all workers.
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams · Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Implement odor control measures if necessary • Dispose of waste materials at USAID or government approved disposal sites/facilities	No approved disposal transporter or facility identified, no segregation. Recommendation: use and document use of appropriate waste transporter or facility.
Flora (Plant species)	• Landscaping plan that uses native plant species • Inlet protection measures will be installed following completion of the storm drain system to prevent sedimentation of the downstream storm water infiltration pond • No potentially significant impacts to flora have been identified. Impacts to plant life and agricultural crops during project works will be mitigated through the appropriate construction supervision activities to ensure that ancillary features are properly cited.	No landscaping onsite during construction. Recommendation: Install appropriate landscaping or verify and document lack of area appropriate for landscaping during construction.

Khost, Khost Province MTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Post-Construction (Operational Phase)		
Hydrology (Aquifer capacity)	• Manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No Hydrogeologic Investigation and Final Well Report available. Recommendation: file report in Project Files.
Hydrology (Groundwater quality)	• Maintain water treatment system • Sample water supply well at regular intervals • Eliminate potential sources of groundwater contamination near well head (I.E. untreated sewage from neighboring properties)	No interval well sampling planned. Recommendation: develop appropriate well sampling program. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.
Hydrology (Wastewater Management)	• Manage use (level) of pesticide (chlorine) for water disinfecting • Maintain waste water treatment system • Implement odor control measures if necessary	No program of chlorine management for water disinfectant. Recommendation: manage use of chlorine as a disinfectant.
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams • Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Dispose of waste materials at USAID or government approved disposal sites/facilities • Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil amendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water supply is too limited to justify septic system use. • Solid wastes shall be transported off the site and disposed of in a disposal site previously approved by the Ministry of Urban Development	Waste streams not planned to be fully segregated. Solid waste not planned to be disposed of with an approved transporter or facility. Recommendation: Document use of appropriate transporter and/or facility.
Flora (Plant species)	• Landscaping plan that uses native plant species and does not require irrigation	Landscaping plans do not utilize native plant species. Recommendation: New landscaping plan.

Appendix H

Bamyan, Bamyan Province MTC IEE Mitigation Items

Bamyan, Bamyan Province MTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Pre-Construction		
Building Site Selection and Design	• Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement • Design incorporates wind direction and management of water supply. Safe sanitation and solid waste disposal	Design does not appear to include energy efficiencies. Recommendation: document any efficiencies designed and incorporated.
UXO	• Certificate • Procedures for discovery, protection and notification • Excavation depth (1.5 meters) • Building outside design footprint	No UXO clearance beyond a depth of 1.5 meters. Recommendation: Document lack of bombardment area with UN MACCA concerning excavation for holding/septic tanks or deep footings.
During Construction		
Air Quality (Dust)	• Use of water (or equivalent) to suppress dust • Locate stationary dust-intensive operations (screening, crushing, etc.) away from neighboring residences when possible • Establish stable ground cover to prevent mobilization of dust • Cover trucks transporting earth, sand or stone with tarps • Sub-Contractors will be required to spray excavation and rehabilitation sites to keep them moist for dust control • Open burning will be prohibited in populated areas and requirements for spraying and related dust control measures and the proper use of solvents and volatile materials will be incorporated in the contract provisions	Tarps not always used for covering loads. Recommendation: use tarps to cover all loads. Open burning was permitted. Recommendation: prohibit open burning on site.
Air Quality (Exhaust emissions)	• Maintain equipment and vehicles in good working order • Limit vehicle idling • Prohibit on-site open burning • Require proper use of solvents and volatile materials	Open burning was permitted. Recommendation: prohibit open burning on site.
Topography and soils (cut and fill)	• Design plan to minimize changes in grade • Reuse excess soil on-site when appropriate • Reuse excess soil at appropriate off-site locations when possible • Obtain imported fill from USAID or government approved quarries and construction material sources	Imported soil not from approved location. Recommendation: Document use of appropriate source.
Hydrology (Aquifer capacity)	• Design, install and manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No measurement of water column. Recommendation: gain access at well head to allow for depth to water measurements. No Hydrogeologic Investigation and Final Well Report available. Recommendation: File report in Project files.
Hydrology (Groundwater quality)	• Design potable treatment system in accordance with recommendations of Final Well Report • Construct and maintain water treatment system • Conduct sampling at well start up and regular intervals thereafter • Eliminate potential sources of groundwater contamination near well head (i.e. untreated sewage from neighboring properties) • Keep existing stream courses and drains clean and free of debris	No initial or regular interval well sampling. Recommendation: develop appropriate initial and interval well sampling program. No Final Well Report available. Recommendation: File report in Project files. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.
Hydrology (Wastewater Management)	• Latrines will be considered during construction, and sanitary waste will be transported off-site to a USAID or government approved disposal site/facility • Construct and maintain waste water treatment system • Manage use (level) of pesticide (chlorine) for water disinfecting • Implement odor control measures if necessary	No approved disposal transporter/facility yet identified. Recommendation: document use of appropriate wastewater transporter/facility. No water treatment system or plan for chlorine use. Recommendation: plan and install appropriate water treatment system with plan for chlorine usage.

Bamyan, Bamyan Province MTC IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Soils and Hazardous Waste (Spills)	• Train workers on Best Management Practices for fueling, maintaining and repairing equipment • Train workers to properly store and label fuel and chemical containers • Train workers to respond to spills • Provide on-site emergency spill kit	No secondary containment for generators and fuel filling area. Recommendation: plan and install appropriate secondary containment. No spill kit and training. Recommendation: create spill kit and train all workers.
Post-Construction (Operational Phase)		
Hydrology (Aquifer capacity)	• Manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No Hydrogeologic Investigation and Final Well Report available. Recommendation: file report in Project Files.
Hydrology (Groundwater quality)	• Maintain water treatment system • Sample water supply well at regular intervals • Eliminate potential sources of groundwater contamination near well head (I.E. untreated sewage from neighboring properties)	No interval well sampling planned. Recommendation: develop appropriate well sampling program. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.
Hydrology (Wastewater Management)	• Manage use (level) of pesticide (chlorine) for water disinfecting • Maintain waste water treatment system • Implement odor control measures if necessary	No program of chlorine management for water disinfectant. Recommendation: manage use of chlorine as a disinfectant.
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams • Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Dispose of waste materials at USAID or government approved disposal sites/facilities • Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil amendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water supply is too limited to justify septic system use. • Solid wastes shall be transported off the site and disposed of in a disposal site previously approved by the Ministry of Urban Development	Waste streams not planned to be fully segregated. Solid waste not planned to be disposed of with an approved transporter or facility. Recommendation: Document use of appropriate transporter and/or facility. No O&M manual available to document soils and hazardous waste management during operation. Recommendation: File O&M manual.
Flora (Plant species)	• Landscaping plan that uses native plant species and does not require irrigation	Landscaping plans do not utilize native plant species. Recommendation: New landscaping plan.

Appendix I

Gardez, Paktia Province 100 Bed Hospital IEE Mitigation Items

Gardez, Paktia Province 100-Bed Hospital IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Pre-Construction		
Building Site Selection and Design	• Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement • Design incorporates wind direction and management of water supply. Safe sanitation and solid waste disposal	Design does not appear to include energy efficiencies. Recommendation: document any efficiencies designed and incorporated.
UXO	• Certificate • Procedures for discovery, protection and notification • Excavation depth (1.5 meters) • Building outside design footprint	No UXO clearance beyond a depth of 1.5 meters. Recommendation: Document lack of bombardment area with UN MACCA concerning excavation for holding/septic tanks or deep footings.
During Construction		
Topography and Soils (Cut and fill)	• Design plan to minimize changes in grade • Reuse excess soil on-site when appropriate • Reuse excess soil at appropriate off-site locations when possible • Obtain imported fill from USAID or government approved quarries and construction material sources	No approved imported fill sources. Recommendation: document use of appropriate import sources.
Hydrology (Aquifer capacity)	• Design, install and manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No Hydrogeologic Investigation and Final Well Report available. Recommendation: file report in Project Files.
Hydrology (Groundwater quality)	• Design potable treatment system in accordance with recommendations of Final Well Report • Construct and maintain water treatment system • Conduct sampling at well start up and regular intervals thereafter • Eliminate potential sources of groundwater contamination near well head (i.e. untreated sewage from neighboring properties) • Keep existing stream courses and drains clean and free of debris	No regular interval well sampling. Recommendation: develop appropriate interval well sampling program. No Final Well Report available. Recommendation: File report in Project files. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.
Hydrology (Wastewater Management)	• Latrines will be considered during construction, and sanitary waste will be transported off-site to a USAID or government approved disposal site/facility • Construct and maintain waste water treatment plant • Manage use (level) of pesticide (chlorine) for water disinfecting • Implement odor control measures if necessary	No approved transporter or facility yet identified. Recommendation: document use of appropriate transporter of facility. No water treatment system or plan for chlorine use. Recommendation: plan and install appropriate water treatment system with plan for chlorine usage.
Soils and Hazardous Waste (Spills)	• Train workers on Best Management Practices for fueling, maintaining and repairing equipment • Train workers to properly store and label fuel and chemical containers • Train workers to respond to spills • Provide on-site emergency spill kit	No secondary containment for generators and fuel filling area. Recommendation: plan and install appropriate secondary containment. No adequate spill kit. Recommendation: create spill kit.
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams · Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Implement odor control measures if necessary • Dispose of waste materials at USAID or government approved disposal sites/facilities	No approved transporter or facility identified, no segregation. Recommendation: document use of appropriate waste transporter or facility.
Flora (Plant species)	• Landscaping plan that uses native plant species • Inlet protection measures will be installed following completion of the storm drain system to prevent sedimentation of the downstream storm water infiltration pond • No potentially significant impacts to flora have been identified. Impacts to plant life and agricultural crops during project works will be mitigated through the appropriate construction supervision activities to ensure that ancillary features are properly cited.	No landscaping onsite during construction. Recommendation: Install appropriate landscaping or verify and document lack of area appropriate for landscaping during construction.

Gardez, Paktia Province 100-Bed Hospital IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Post-Construction (Operational Phase)		
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams • Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Dispose of waste materials at USAID or government approved disposal sites/facilities • Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil amendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water supply is too limited to justify septic system use. • Solid wastes shall be transported off the site and disposed of in a disposal site previously approved by the Ministry of Urban Development	Waste streams not planned to be fully segregated. No approved transporter or facility available. Recommendation: Document use of appropriate disposal transporter or facility.

Appendix J

Khair Kot, Paktika Province 20 Bed Hospital IEE Mitigation Items

Khair Kot, Paktika Province 20-Bed Hospital IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Pre-Construction		
Building Site Selection and Design	• Incorporates passive solar and energy-efficiency including attention to site orientation, building material and window placement • Design incorporates wind direction and management of water supply. Safe sanitation and solid waste disposal	Design does not appear to include energy efficiencies. Recommendation: document any efficiencies designed and incorporated.
UXO	• Certificate • Procedures for discovery, protection and notification • Excavation depth (1.5 meters) • Building outside design footprint	No UXO clearance beyond a depth of 1.5 meters. Recommendation: Document lack of bombardment area with UN MACCA concerning excavation for holding/septic tanks or deep footings.
During Construction		
Topography and Soils (Cut and fill)	• Design plan to minimize changes in grade • Reuse excess soil on-site when appropriate • Reuse excess soil at appropriate off-site locations when possible • Obtain imported fill from USAID or government approved quarries and construction material sources	No approved imported fill sources. Recommendation: document use of appropriate import sources.
Hydrology (Aquifer capacity)	• Design, install and manage flow from supply well in accordance with recommendations of Hydrogeologic Investigation and Final Well Report	No Hydrogeologic Investigation and Final Well Report available. No documentation of aquifer capacity. Recommendation: file report in Project Files.
Hydrology (Groundwater quality)	• Design potable treatment system in accordance with recommendations of Final Well Report • Construct and maintain water treatment system • Conduct sampling at well start up and regular intervals thereafter • Eliminate potential sources of groundwater contamination near well head (i.e. untreated sewage from neighboring properties) • Keep existing stream courses and drains clean and free of debris	No initial or regular interval well sampling. Recommendation: develop appropriate initial and interval well sampling program. No Final Well Report available. Recommendation: File report in Project files. No planned water treatment system. Recommendation: plan and install appropriate water treatment system.
Hydrology (Wastewater Management)	• Latrines will be considered during construction, and sanitary waste will be transported off-site to a USAID or government approved disposal site/facility • Construct and maintain waste water treatment plant • Manage use (level) of pesticide (chlorine) for water disinfecting • Implement odor control measures if necessary	No approved transporter or facility yet identified. Recommendation: document use of appropriate transporter of facility. No water treatment system or plan for chlorine use. Recommendation: plan and install appropriate water treatment system with plan for chlorine usage.
Soils and Hazardous Waste (Spills)	• Train workers on Best Management Practices for fueling, maintaining and repairing equipment • Train workers to properly store and label fuel and chemical containers • Train workers to respond to spills • Provide on-site emergency spill kit	No secondary containment for generators and fuel filling area. Recommendation: plan and install appropriate secondary containment. No adequate spill kit. Recommendation: create spill kit.
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams · Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Implement odor control measures if necessary • Dispose of waste materials at USAID or government approved disposal sites/facilities	No approved transporter or facility identified, no segregation. Recommendation: document use of appropriate waste transporter or facility.
Flora (Plant species)	• Landscaping plan that uses native plant species • Inlet protection measures will be installed following completion of the storm drain system to prevent sedimentation of the downstream storm water infiltration pond • No potentially significant impacts to flora have been identified. Impacts to plant life and agricultural crops during project works will be mitigated through the appropriate construction supervision activities to ensure that ancillary features are properly cited.	No landscaping onsite during construction. Recommendation: Install appropriate landscaping or verify and document lack of area appropriate for landscaping during construction.

Khair Kot, Paktika Province 20-Bed Hospital IEE Mitigation Items		
Environmental Consideration	Mitigation Measures	Observations/Recommendations
Post-Construction (Operational Phase)		
Solid and Hazardous Waste Management	• Train workers on Best Management Practices for management of hazardous waste, including labeling, storage, handling and proper off-site disposal • Segregate waste streams • Implement waste management strategy to limit use of toxic/hazardous materials and reduce unnecessary waste and recycle reusable materials • Dispose of waste materials at USAID or government approved disposal sites/facilities • Adequate sanitary facilities with septic systems and drain fields will be designed, with provisions for pumping and use of human waste as an agricultural field soil amendment. Alternatively, approved ventilated improved pit (VIP) latrine technology will be used and a management plan developed and implemented where water supply is too limited to justify septic system use. • Solid wastes shall be transported off the site and disposed of in a disposal site previously approved by the Ministry of Urban Development	Waste streams not planned to be fully segregated. No approved transporter or facility available. Recommendation: Document use of appropriate disposal transporter or facility.

USAID/Afghanistan
U.S. Embassy Cafe Compound
Great Masood Road
Kabul, Afghanistan
Tel: 202.216.6288
http://afghanistan.usaid.gov